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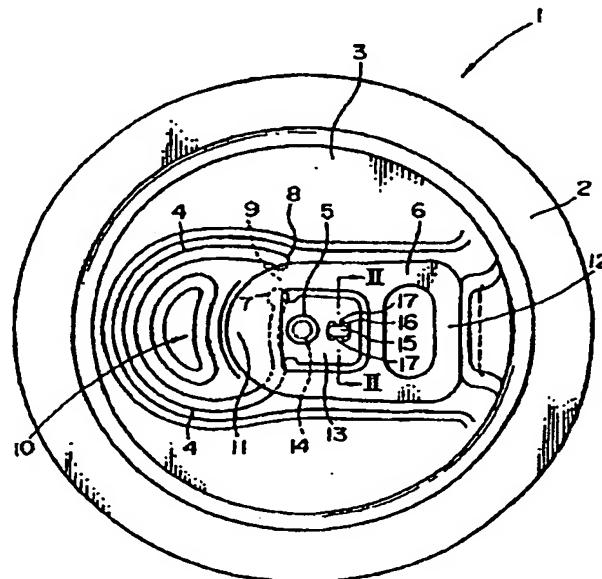
(54)【発明の名称】 イージーオープン缶蓋

(57)【要約】

【課題】パネル上におけるタブの回転を確実に防止することにより円滑に開口することができると共に製造容易なイージーオープン缶蓋を提供する。

【解決手段】缶蓋1のリベット5に舌片13を介してタブ6を固着する。缶蓋1のパネル3の舌片13に対応する位置に、パネル3の上面から突出する凸部15を設ける。舌片13に、凸部15に対応する切欠部16を設ける。切欠部16の内方に、互いに対向して張出して先端が凸部15の側壁に沿って立ち上がり、凸部15の側壁に圧接することによって舌片13を回転不能とする一対の張出部17を設ける。

FIG. 1



【特許請求の範囲】

【請求項1】パネルと、該パネルに破断開口形状に刻設したスコアと、該スコアによって包囲形成された破断開口部と、先端部が該破断開口部に臨むと共に後端部に把持部を有し先端部と後端部の中間位置に前記パネルの上面に形成されたリベットにより固着する舌片を有するタブとを備え、該タブによって前記スコアを破断しつつ前記破断開口部をパネルの裏面方向に押し下げて破断開口部を開口すると共に開口することによって形成される破断開口片の一部がパネルに繋がった状態でパネルの裏面側に折り込まれるイージーオープン缶蓋において、前記パネルの前記舌片に対応する位置に、該パネルの上面から突出する凸部を設け、前記舌片に、前記凸部に対応する切欠部を設け、該切欠部の内方に互いに対向して張出して先端が前記凸部の両側壁に沿って立ち上がり、該凸部の両側壁に圧接して舌片を回転不能とする一対の張出部を設けたことを特徴とするイージーオープン缶蓋。

【請求項2】パネルと、該パネルに破断開口形状に刻設したスコアと、該スコアによって包囲形成された破断開口部と、先端部が該破断開口部に臨むと共に後端部に把持部を有し先端部と後端部の中間位置に前記パネルの上面に形成されたリベットにより固着する舌片を有するタブとを備え、該タブによって前記スコアを破断しつつ前記破断開口部をパネルの裏面方向に押し下げて破断開口部を開口すると共に開口することによって形成される破断開口片の一部がパネルに繋がった状態でパネルの裏面側に折り込まれるイージーオープン缶蓋において、前記パネルの前記舌片の両側に沿って該パネルの上面から突出する一対の凸部を設け、前記舌片の両側縁に各凸部に向かって張出して先端が該凸部の側壁に沿って立ち上がり、両凸部の側壁に圧接して舌片を回転不能とする一対の張出部を設けたことを特徴とするイージーオープン缶蓋。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、缶入り飲料の飲み口等を容易に開口することができるイージーオープン缶蓋に関する。

【0002】

【従来の技術】通常、ビール、コーヒー飲料、炭酸飲料及び果汁飲料等の飲料を充填した飲料缶の缶蓋には、イージーオープン缶蓋が用いられている。この種のイージーオープン缶蓋としては、タブを持ち上げて缶蓋に開ルーフ状に刻設した開口用スコアを破断して、缶蓋を開口してもその際生じた破断開口片が缶蓋に繋がったまま缶内に押し込まれ、タブは、缶蓋にリベットで固着されているので、共に缶蓋から切り離されることがない、いわゆるステイオンタブ式の缶蓋が知られている。

【0003】この種の缶蓋は、パネルに開口部を形成す

る形状に沿って始端から終端に連続するスコアが設けられ、該スコアによって包囲されて破断開口部を形成する破断開口片が設けられている。該スコアの始端と終端とは所定間隔を存して不連続に設けられているため、該スコアに沿って破断したとき破断開口片がパネルに繋がったままの状態となる。

【0004】該スコアの破断は、パネルの上面にリベットによって取り外し不能に取着されたタブにより行われる。破断開口部を開口するためには、タブの後端部に形成された把持部に指を掛けて、該タブをパネルに対して起立する方向に引き上げる。これにより、該タブの先端縁が破断開口部が押圧され、スコアに沿って破断された破断開口片がパネルの裏面方向に押し下げられる。そして、破断開口片がパネルに繋がった状態でパネルの裏面側に折り込まれて、パネルが開口される。

【0005】ところで、前記タブは、蓋の取扱工程で前記リベットを中心としてパネル上で回転することがある。そして、パネルの破断開口部を開口するときにタブが所定の位置から他の位置へ回転していた場合、或いは開口操作中に回転した場合には、タブの先端部が破断開口部の上面に当接するときにスコアの破断が最も確実に進行する位置からズレてしまい、破断開口部のスコアを破断する際に大きな破断力が必要となり、円滑な破断に支障を来すおそれがある。そこで、本出願人は、先に特開平4-43517号によって、前記タブを回転不能とするイージーオープン缶蓋を多数提案した。これによつて、タブの先端部を破断開口部の適切な位置に当接させて該スコアの円滑な破断を実現したが、更に、構造を簡単として製造容易であつて、より確実にタブの回転を防止することができるものが望まれていた。

【0006】

【発明が解決しようとする課題】かかる不都合を解消して、本発明は、パネル上におけるタブの回転を確実に防止することにより円滑に開口することができると共に製造容易なイージーオープン缶蓋を提供することを目的とする。

【0007】

【課題を解決するための手段】かかる目的を達成するために、本発明の第1の態様は、パネルと、該パネルに破断開口形状に刻設したスコアと、該スコアによって包囲形成された破断開口部と、先端部が該破断開口部に臨むと共に後端部に把持部を有し先端部と後端部の中間位置に前記パネルの上面に形成されたリベットにより固着する舌片を有するタブとを備え、該タブによって前記スコアを破断しつつ前記破断開口部をパネルの裏面方向に押し下げて破断開口部を開口すると共に開口することによって形成される破断開口片の一部がパネルに繋がった状態でパネルの裏面側に折り込まれるイージーオープン缶蓋において、前記パネルの前記舌片に対応する位置に、該パネルの上面から突出する凸部を設け、前記舌片に、

前記凸部に対応する切欠部を設け、該切欠部の内方に互いに対向して張出して先端が前記凸部の両側壁に沿って立ち上がり、該凸部の両側壁に圧接して舌片を回転不能とする一対の張出部を設けたことを特徴とする。

【0008】また、本発明の第2の態様は、前記パネルの前記舌片の両側に沿って該パネルの上面から突出する一対の凸部を設け、前記舌片の両側縁に各凸部に向かって張出して先端が該凸部の側壁に沿って立ち上がり、両凸部の側壁に圧接して舌片を回転不能とする一対の張出部を設けたことを特徴とする。

【0009】本発明の各態様においては、舌片の張出部は凸部に当接されており、該凸部が張出部を介して舌片の回転を規制する。これによって、タブのリベット廻りの回転を防止することができ、該タブの先端部を破断開口部の適切な位置に当接させることができる。即ち、本発明の第1の態様においては、前記舌片には、前記凸部に対応する切欠部が形成されており、該切欠部の内方に張出して形成された一対の張出部が、凸部の両側壁に圧接して突っ張るので、確実にタブを回転不能とすることができます。同じように、本発明の第2の態様においては、前記舌片の両側に沿って設けられた一対の凸部に、該舌片の両側縁から張出す張出部が圧接して突っ張り、確実にタブを回転不能とすることができます。

【0010】また本発明の上記各態様においては、前記張出部は、その先端が前記凸部の側壁に沿って立ち上がった状態で圧接するように形成されている。このように張出部の先端に前記立ち上がり部分を形成するためには、該張出部を、舌片の端縁と凸部との間隔よりも多少大きく凸部に向かって張り出すように形成しておけば良い。こうすることにより、パネルにタブを取り付けるためにリベットを押し潰すカシメ止め加工を行うときに、同時に舌片の張出部をパネル上面に押圧するだけで、該張出部の先端部が凸部に沿って立ち上がって該凸部の側壁に密着するように成形することができ、該張出部と凸部とが一体的に密着する状態を極めて簡単に形成することができる。

【0011】また、凸部の加工時の誤差によって該凸部が多少大きく形成されていた場合にも、パネルにタブを取り付ける際に舌片をパネル上面に押しつけるだけで張出部の先端が立ち上がって凸部の形状に対応するので、タブをパネル上に取り付けた際に舌片本体が凸部に乗り上げた状態となることを防止することができ、確実にタブを回り止めることができる。

【0012】

【発明の実施の形態】本発明の第1の実施形態を図1及び図2に基づいて説明する。図1は第1の実施形態の缶蓋の平面図、図2は図1のII-II線断面図である。

【0013】図1に示すように、缶蓋1は、巻締め用のカール部2をその周縁に備え、該カール部2に包囲される内側にパネル3を備えている。パネル3には、缶蓋1

を開口するためのスコア4が刻設されており、該パネル3の上面側には、リベット5を介してタブ6が固定されている。

【0014】スコア4は、始端7と終端8とが間隔9をなして破断開口形状に沿って始端7から終端8に連続して設けられており、このスコア4によって包囲されて、大略梢円形状の破断開口部10が形成されている。

【0015】タブ6は、図1に示すように、その先端部11が前記破断開口部10に当接してスコア4を破断可能としており、その後端部に把持部12を備えている。該タブ6の先端部11は、前記破断開口部10において、前記スコア4を的確且つ容易に破断させる所定の位置に臨んで設けられている。また、該タブ6には、先端部11と把持部12との中间位置に前記リベット5によってパネル3に固定される舌片13が連設されている。該舌片13はタブ6の先端部11と把持部12との中间部分を略コ字形に打ち抜くことによって形成され、リベット5が押通可能なリベット穴14を備えている。該舌片13は、リベット穴14にリベット5を押着してリベット5を押し潰すカシメ加工によってパネル3上に固定される。更に、該舌片13によってパネル3上におけるタブ6の振動が可能とされている。

【0016】また、図1及び図2に示すように、パネル3には、前記舌片13に対応する位置に突出する凸部15が形成されている。前記舌片13には、該凸部15を包囲するように切り欠き形成された円孔部16が形成されている。該円孔部16の内周縁には、凸部15を介して対向する一対の張出部17が形成されている。該張出部17は、図2に示すように、凸部15に向かって張出してその先端部18が該凸部15の両側壁に沿って立ち上がり、該凸部15の両側壁に圧接して舌片13を回転不能としている。これにより、前記パネル3上における前記タブ6の回転が確実に防止されている。なお、前記凸部15は、張出部17の張り出し方向に直交する方向を長手とする平面視大略梢円形状に崩出成形されている。これによって、該凸部15はその側壁が比較的長い寸法で起立されており、張出部17が圧接される範囲を比較的広くして張出部17を確実に規制している。また、本実施形態においては凸部15に対応する円孔部16を舌片13に設けたが、該円孔部16については、舌片13の把持部12側において開放された凹形状の切欠であってもよい。

【0017】前記張出部17は、円孔部16の内周縁と凸部15との間隔よりも多少大きく凸部15に向かって張り出すように形成されている。これによって、パネル3上にタブ6を取り付ける際に、張出部17の先端部18を凸部15の両側壁に沿って立ち上がる形状に形成することができる。即ち、パネル3上へのタブ6の取り付けは、図示しないが、次のようにして行われる。先ず、パネル3のリベット5にタブ6の舌片13に形成された

リベット穴14を挿通させる。このとき、舌片13の円孔部16にはパネル3に形成された凸部15が対応する。次いで、リベット穴14を貫通して上方に突出するリベット5を押圧して潰し、これによってパネル3上に舌片13を固着する。同時に、舌片13及びその張出部17をパネル3上に押圧する。このとき、張出部17は、その先端部18が凸部15に当接して凸部15の両側壁に沿って立ち上がる。そして、例えば、凸部15の加工時の誤差によって該凸部15が多少大きく形成されていた場合であっても、舌片13及び張出部17をパネル3上に押圧することによって、張出部17の先端部18が立ち上がり、凸部15の形状に対応する。このようにして、該張出部17と凸部15とが一体的に密着する状態を極めて簡単に形成することができる。

【0018】そして、以上のように構成された缶蓋1の開口操作時においては、図1を参照して、前記タブ6の把持部12に指を掛けて引き上げて、該タブ6全体をパネル3に対して起立する方向に持ち上げられるが、該タブ6は回転不能とされているので、前記破断開口部10の所定の位置に前記先端部11を正確に当接させることができる。そして、図示しないが、該タブ6によって前記スコア4を破断しつつ前記破断開口部10をパネル3の裏面方向に押し下げて破断開口部10を開口すると共に開口することによって形成された破断開口片の一部がパネル3に畳がった状態でパネルの裏面側に折り込まれる。このように、開口操作の最中にも、前記凸部15への張出部17の圧接が維持されているので、舌片13を介してタブ6のリベット5廻りの回転が確実に防止され、缶蓋1を極めて容易に開口することができる。

【0019】次に、本発明の第2の実施形態を図3及び図4に基づいて説明する。図3は第2の実施形態の缶蓋の平面図、図4は図3のIV-IV線断面図である。

【0020】なお、第2の実施形態において、前記第1の実施形態の缶蓋1と同一の構成をなすものについては、図中に同一の符号を付してその説明を省略する。

【0021】図3に示すように、第2の実施形態の缶蓋20は、前記第1の実施形態の缶蓋1と同様にしてタブ21が設けられているが、該タブ21の舌片22は、その両側縁に張出す一对の張出部23を備えている。一方、前記パネル24には、前記舌片22の両側に沿って突出する一对の凸部25が形成されている。即ち、舌片

22は、一对の凸部25間に位置しており、張出部23は、各凸部25に向かって張出して先端部26(図4示)が両凸部25の側壁に圧接することによって舌片22を回転不能としている。前記凸部25は、前記第1の実施形態と同様に、張出部23の張り出し方向に直交する方向を長手とする平面視大略梢円形状に膨出成形されている。これによって、該凸部25はその側壁が比較的長い寸法で起立されており、張出部23が圧接される範囲を比較的広くして張出部23を確実に規制している。【0022】図4に示すように、前記張出部23は、その先端部26が各凸部25の内側壁に沿って立ち上がって両凸部25に圧接しており、これにより、各凸部25を張出部23によって押さえつけて前記パネル24上における前記タブ21の回転が確実に防止されている。

【0023】また、前記張出部23は、その各側縁と各凸部25との間隔よりも多少大きく凸部25に向かって張り出すように形成されている。そして、パネル24上へのタブ21の取り付けは、前述した第1の実施形態と同様であって、リベット5を押し潰してパネル24上に舌片22を固着する際に、舌片22及び張出部23をパネル24上に押圧するだけで、張出部23は、その先端部26が凸部25に当接して両凸部25の内側壁に沿って立ち上がる。このとき、凸部25の加工時の誤差によって各凸部25が多少大きく形成されていた場合であっても、パネル24上に押圧された張出部23の先端部26が各凸部25の側壁に沿って立ち上がり、凸部25の形状に対応させることができ、該張出部23と凸部25とが一体的に密着する状態を極めて簡単に形成することができる。

【図面の簡単な説明】

【図1】本発明の第1の実施形態の缶蓋の平面図。

【図2】図1のII-II線断面図。

【図3】本発明の第2の実施形態の缶蓋の平面図。

【図4】図3のIV-IV線断面図。

【符号の説明】

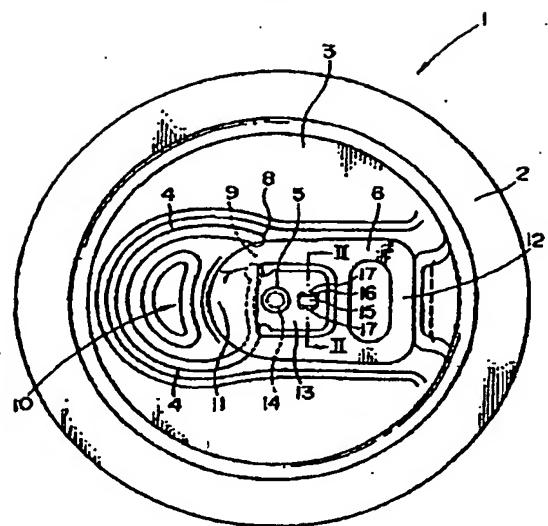
- 1, 20…イージーオープン缶蓋、3, 24…パネル、4…スコア、5…リベット、6, 21…タブ、10…破断開口部、11…先端部、12…把持部、13, 22…舌片、15, 25…凸部、16…円孔部(切欠部)、17, 23…張出部。

(5)

特開平9-226762

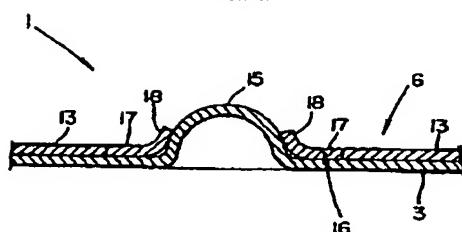
【図1】

FIG. 1



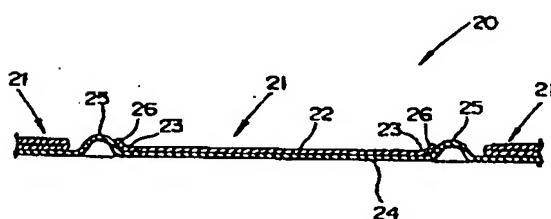
【図2】

FIG. 2



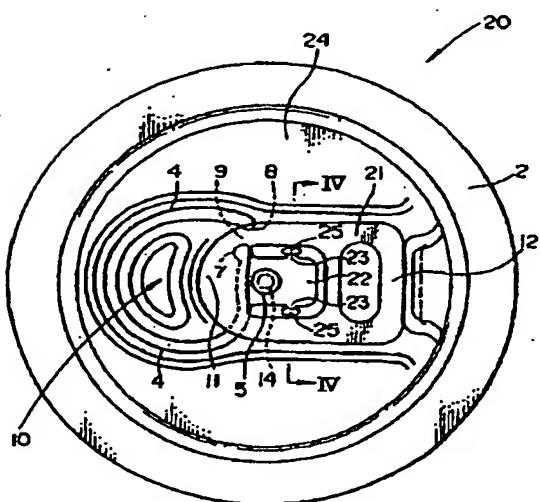
【図4】

FIG. 4



【図3】

FIG. 3



TRANSLATOR'S NOTES

REF: JAPANESE PATENT KOKAI HEI H09-226762A
The following points were noted while translating the above text.

Throughout the Text

Colons and semicolons have been added by the translator in order to help bring out the apparent intended meaning (official Japanese has no colons and semicolons, and thus their use is to some extent a matter of interpretation – often founded on features of the Japanese which have no exact equivalents in English).

The term "circular hole" is a literal translation from the Japanese. It is hard to square the word "circular" with the depiction in Figure 1 (where the hole appears to be more rectangular). It may therefore be that, in a rather colloquial way, the term "circular" was meant to be a weak element of the Japanese compound term – not intended to have its usual meaning in this context.

Specific Instances

Section	Comment
0004	In arriving at the translation "This causes the front edge of the tab to press against the break-open part", the Japanese subject-marking grammatical particle "ga" after "front edge" has been understood as the particle "de" which marks the instrument by which an action is performed.
0022	The English reflects the Japanese in the end phrase "the protruding parts 25 are held in place by means of the extending parts 23". Possibly the phrase "the <u>extending parts 23</u> are held in place by means of the <u>protruding parts 25</u> " may have been intended.
0023	A phrase which might usually be expected to mean " <u>their side edges</u> " (i.e. the side edges of the extending parts 23) has been understood as " <u>the side edges</u> " (i.e. the side edges of the tongue piece 22). (The distinction between "their" and "the" is anyway more of a blurred distinction in Japanese).

END OF TRANSLATOR'S NOTES

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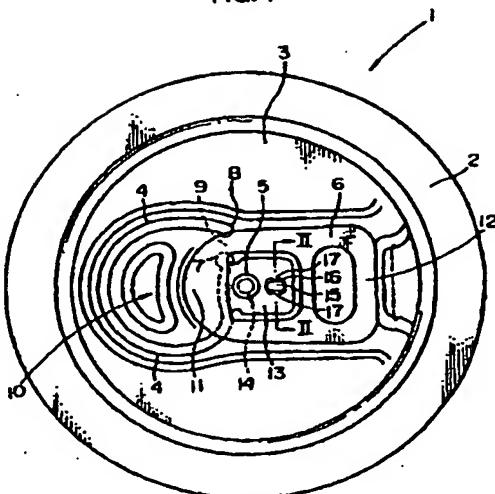
(54) [Title of the invention] Easy-open can lid

(57) [Abstract]

[Issue] To provide an easy-open can lid which can be opened smoothly by reliably preventing rotation of the tab on the panel, and which can be manufactured simply.

[Means of resolution] A tab 6 is secured, via a tongue piece 13, on the rivet 5 of a can lid 1. A protruding part 15, which projects from the upper surface of the panel 3, is provided in the panel 3 of the can lid 1, in a position corresponding to the tongue piece 13. The tongue piece 13 is provided with a cut-away part 16 corresponding to the protruding part 15. The inside of the cut-away part 16 is provided with a pair of extending parts 17, extending facing each other, the front ends of which rise up along the side walls of the protruding part 15 and press against the side walls of the protruding part 15 and thereby ensure that the tongue piece 13 is not able to rotate.

FIG. 1



[Scope of patent claims]**[Claim 1]**

Easy-open can lid comprising a panel; a score inscribed in a break-open shape in the said panel; a break-open part formed encircled by the said score; and a tab, the front-end part of which faces onto the said break-open part, the rear-end part of which has a grasping part, and which has a tongue piece secured by means of a rivet formed in the upper surface of the above-mentioned panel in a position between the front-end part and the rear-end part; and, in which said easy-open can lid, the said tab is used to break the above-mentioned score and as it does so it presses the above-mentioned break-open part down in the direction of the reverse surface of the panel and so opens the break-open part, and a portion of the break-open piece formed thereby is folded in towards the reverse surface of the panel while remaining connected to the panel; the said easy-open can lid being characterised in that

a protruding part is provided projecting from the upper surface of the above-mentioned panel, in a position on the said panel corresponding to the above-mentioned tongue piece; and
the above-mentioned tongue piece is provided with a cut-away part corresponding to the above-mentioned protruding part, and

is provided with a pair of extending parts which extend facing each other inwards in the said cut-away part, rise up along the two side walls of the above-mentioned protruding part and press against the two side walls of the said protruding part in such a way as to ensure that the tongue piece is not able to rotate.

[Claim 2]

Easy-open can lid comprising a panel; a score inscribed in a break-open shape in the said panel; a break-open part formed encircled by the said score; and a tab, the front-end part of which faces onto the said break-open part, the rear-end part of which has a grasping part, and which has a tongue piece secured by means of a rivet formed in the upper surface of the above-mentioned panel in a position between the front-end part and the rear-end part; and, in which said easy-open can lid, the said tab is used to break the above-mentioned score and as it does so it presses the above-mentioned break-open part down in the direction of the reverse surface of the panel and so opens the break-open part, and a portion of the break-open piece formed thereby is folded in towards the reverse surface of the panel while remaining connected to the panel; the said easy-open can lid being characterised in that

a pair of protruding parts are provided projecting from the upper surface of the above-mentioned panel, on the panel along both sides of the above-mentioned tongue piece; and
the two side edges of the above-mentioned tongue piece are provided with a pair of extending parts which extend towards each of the protruding parts, and the front ends of which rise up

along the side walls of the said protruding parts and press against the side walls of the two protruding parts in such a way as to ensure that the tongue piece is not able to rotate.

[Detailed Description of the Invention]

[0001]

[Technical Field]

The present invention relates to an easy-open can lid which allows the drinking opening or the like of canned drinks to be opened easily.

[0002]

[Prior Art]

Easy-open can lids are generally used for the lids of drink cans that contain beer, coffee, carbonated drinks, fruit juices or other drinks. This type of easy-open can lid is known in the art. For example, the so-called 'stay-on tab' can lid has an open-loop-shaped opening score which is ruptured when a tab is lifted. The ruptured opening piece produced when the can is opened remains connected to the can lid and is pressed inside the can. Since the tab is secured to the can by a rivet, it too cannot be detached from the can lid.

[0003]

This type of can has a continuous score from a start point to an end point, running in a shape that forms the opening part in the panel, and has a break-open piece forming a break-open part surrounded by the score. Since the start point and end point of the score are discontinuous, and spaced apart by a predetermined distance, when a rupture is produced along the score, the break-open piece remains connected to the panel.

[0004]

The score is ruptured by means of a tab which is non-detachably fixed to the upper surface of the panel by means of a rivet. In order to open the break-open part, a finger is placed in a grasping part formed at the rear-end part of the tab, and the tab is pulled up so that it stands up from the panel. This causes the front edge of the tab to press against the break-open part, the break-open piece ruptures along the score and is pressed down in the direction of the reverse surface of the panel. While remaining connected to the panel, the break-open piece is then folded in towards the reverse surface of the panel, and the panel is opened.

[0005]

During the lid handling process, said tab may rotate on the panel about said rivet. When a ruptured opening is made in the panel, if the tab has rotated from a predetermined position to a different position, or if it rotates during the opening operation, when the front end of the tab abuts the upper surface of the break-open part, it is offset from the optimal position for rupturing the score, so that a larger rupturing force is required to rupture the score of the break-

open part, and the rupture may not be smooth. In utility model application H04-43517, the present applicants previously proposed several easy-open can lids that prevent the tab from rotating. Although these proposals enable smooth rupturing of the score by causing the front end of the tab to abut the break-open part at a suitable position, it is desirable to provide a more reliable means of preventing rotation of the tab, with a simplified structure to allow easy manufacture.

[0006]

[Problem to be overcome by the invention]

With a view to overcoming these problems, it is an aim of the present invention to provide an easy-open can lid which can be opened smoothly by reliably preventing rotation of the tab on the panel, and which can be manufactured simply.

[0007]

[Means for overcoming the problems]

In order to achieve the above aim, a first aspect of the present invention is an easy-open can lid comprising a panel; a score inscribed in a break-open shape in the said panel; a break-open part formed encircled by the said score; and a tab, the front-end part of which faces onto the said break-open part, the rear-end part of which has a grasping part, and which has a tongue piece secured by means of a rivet formed in the upper surface of the above-mentioned panel in a position between the front-end part and the rear-end part; and, in which said easy-open can lid, the said tab is used to break the above-mentioned score and as it does so it presses the above-mentioned break-open part down in the direction of the reverse surface of the panel and so opens the break-open part, and a portion of the break-open piece formed thereby is folded in towards the reverse surface of the panel while remaining connected to the panel; characterised in that a protruding part is provided projecting from the upper surface of the above-mentioned panel, in a position on the said panel corresponding to the above-mentioned tongue piece; and the above-mentioned tongue piece is provided with a cut-away part corresponding to the above-mentioned protruding part, and is provided with a pair of extending parts which extend facing each other inwards in the said cut-away part, rise up along the two side walls of the above-mentioned protruding part and press against the two side walls of the said protruding part in such a way as to ensure that the tongue piece is not able to rotate.

[0008]

Further, a second aspect of the present invention is characterised in that a pair of protruding parts are provided projecting from the upper surface of the above-mentioned panel, on the panel along both sides of the above-mentioned tongue piece; and the two side edges of the above-mentioned tongue piece are provided with a pair of extending parts which extend towards each

of the protruding parts, and the front ends of which rise up along the side walls of the said protruding parts and press against the side walls of the two protruding parts in such a way as to ensure that the tongue piece is not able to rotate.

[0009]

In accordance with these aspects of the present invention, the extending parts of the tongue piece abut the protruding part(s), so that the protruding part(s) restricts (restrict) rotation of the tongue piece via the extending part. It is thereby possible to prevent rotation of the tab about the rivet, and ensure that the front-end part of the tab abuts the break-open part at the correct position. More specifically, in accordance with the first aspect of the present invention, a cut-away part corresponding to the abovementioned protruding part is formed in the abovementioned tongue piece, and a pair of extending parts, which are formed so as to extend inside the cut-away part, are braced against both side walls of the protruding part by pressing against them, thereby reliably preventing rotation of the tab. Similarly, in accordance with the second aspect of the present invention, extending parts projecting from both edges of the tongue piece are braced against a pair of protruding pieces provided along both sides of the tongue piece by pressing against them, thereby reliably preventing rotation of the tab.

[0010]

Furthermore, in accordance with the above-mentioned aspects of the present invention, the extending parts are formed so that the front-end parts thereof rise up along the side walls of the protruding part(s), pressing against them. In order to form said rising-up portions at the front-ends of the extending parts, the extending parts should be formed so as to project towards the protruding part(s) slightly further than the spacing between the edge of the tongue piece and the protruding part(s). Therefore, during a riveting process when the rivet is clenched to attach the tab to the panel, simply by simultaneously pressing the extending parts of the tongue piece onto the upper surface of the panel, the front-end parts of the extending parts can be formed so as to rise up along the protruding part(s) in such a way that they make intimate contact with the side walls of the protruding part(s). This is a particularly simple way of establishing intimate contact between the extending parts and the protruding part(s).

[0011]

Furthermore, even if errors in working the protruding part cause the protruding part to be formed slightly larger than normal, when the tab is attached to the panel, simply by pressing the tongue piece onto the upper surface of the panel, the front-end parts of the extending parts rise up, corresponding to the shape of the protruding part(s), so that, when the tab is attached to the panel, the main body of the tongue piece can be prevented from riding up on the protruding part, and the tab can be reliably prevented from rotating.

[0012]

[Modes of embodiment of the invention]

A first mode of embodiment of the present invention is described with reference to Figure 1 and Figure 2. Figure 1 is an overhead plan view of a can lid of a first mode of embodiment, and Figure 2 is a cross-section taken along the line II-II in Figure 1.

[0013]

As shown in Figure 1, the can lid 1 comprises, on its circumferential edge, a curl part 2 for use in seaming, and comprises a panel 3 on the inside encircled by the said curl part 2. The panel 3 is incised with a score 4 for opening the can lid 1, and a tab 6 is secured via a rivet 5 onto the upper surface of the said panel 3.

[0014] The score 4 is provided continuously from a starting point 7 to an ending point 8, tracing a break-open shape, a space 9 being delineated by the starting point 7 and ending point 8; and a substantially elliptical break-open part 10 is formed encircled by the score 4.

[0015]

Referring next to the tab 6, as shown in Figure 1 its front-end part 11 can break the score 4 by abutting against the above-mentioned break-open part 10, while its rear-end part 12 is provided with a grasping part 12. The front-end part 11 of the said tab 6 is provided facing onto a predetermined position of the above-mentioned break-open part 10, where it can break the above-mentioned score 4 in an appropriate and easy fashion. Further, the said tab 6 is provided with an extension in the form of a tongue piece 13 whereby it is secured to the panel 3 by means of the above-mentioned rivet 5, in a position between the front-end part 11 and the grasping part 12. The said tongue piece 13 is formed by blanking the portion between the front-end part 11 and the grasping part 12 of the tab 6 approximately into the shape of the Japanese "letter" 匚, and is provided with a rivet hole 14 which allows the rivet 5 to pass through. The said tongue piece 13 is secured onto the panel 3 by means of a riveting process whereby the rivet 5 is slotted through the rivet hole 14 and is then clenched. Additionally, the tab 6 is able to rock on the panel 3 by means of the said tongue piece 13.

[0016]

Further, as shown in Figure 1 and Figure 2, the panel 3 is formed with a protruding part 15 which projects in a position corresponding to the above-mentioned tongue piece 13. The above-mentioned tongue piece 13 is formed with a circular hole part 16 formed by being cut away in such a way as to encircle the said protruding part 15. The inner circumferential edge of the said circular hole part 16 is formed with a pair of extending parts 17 which face each other via the protruding part 15. As shown in Figure 2, the said extending parts 17 extend towards the

protruding part 15, their front-end parts 18 rise upwards along both side walls of the said protruding part 15, and they press against both side walls of the said protruding part 15 in such a way as to ensure that the tongue piece 13 is not able to rotate. This reliably prevents rotation of the above-mentioned tab 6 on the above-mentioned panel 3. It will be noted that the above-mentioned protruding part 15 is formed bulging in a substantially elliptical shape, as seen in plan view, elongated in the direction orthogonal to the direction in which the extending parts 17 extend. Thus, the protruding part 15 reliably constrains the extending parts 17 since its side walls stand up with comparatively long dimensions, and the area against which the extending parts 17 are pressed is comparatively wide. Further, in the present embodiment, the circular hole part 16 corresponding to the protruding part 15 has been provided in the tongue piece 13, but the said circular hole part 16 may comprise an indented cut-away in the tongue piece 13, opening towards the grasping part 12.

[0017]

The above-mentioned extending parts 17 are formed so as to be slightly larger than the space between the protruding part 15 and the inner circumferential edge of the circular hole part 16 and to extend towards the protruding part 15. Thus, they can be formed to a shape such that when the tab 6 is attached onto the panel 3, the front-end parts 18 of the extending parts 17 rise upwards along both the side walls of the protruding part 15. More specifically, although not depicted, the tab 6 is attached onto the panel 3 in the following way. Firstly, the rivet hole 14 formed in the tongue piece 13 of the tab 6 has the rivet 5 of the panel 3 inserted through it. At this time, the protruding part 15 formed in the panel 3 corresponds to the circular hole part 16 of the tongue piece 13. Next the rivet 5, which has passed through the rivet hole 14 and projects upwards, is clenched under pressure, thereby securing the tongue piece 13 onto the panel 3. At the same time, the tongue piece 13 and its extending parts 17 are pressed onto the panel 3. At this time, the extending parts 17 rise upwards along both the side walls of the protruding part 15 as their front-end parts 18 abut against the protruding part 15. Also, even if, by way of example, the protruding part 15 is formed so as to be slightly large due to an error when the said protruding part 15 was worked, the front-end parts 18 of the extending parts 17 rise upwards and correspond to the shape of the protruding part 15 due to the pressing of the tongue piece 13 and the extending parts 17 onto the panel 3. In this way, it is extremely easy to create a state in which the said extending parts 17 and the protruding part 15 are in integral intimate contact.

[0018]

Also, referring to Figure 1, during the operation of opening a can lid 1 constituted in the way described above, a finger is placed on the grasping part 12 of the above-mentioned tab 6 which is pulled up, and the tab 6 as a whole is lifted up in the direction in which it stands up from the

panel 3, and, here, since the said tab 6 is unable to rotate, the above-mentioned front-end part 11 can be made to abut accurately against a predetermined position of the above-mentioned break-open part 10. Also, although not depicted, the said tab 6 is used to break the above-mentioned score 4 and as it does so it presses the above-mentioned break-open part 10 down in the direction of the reverse surface of the panel 3 and so opens the break-open part 10, and a portion of the break-open piece formed thereby is folded in towards the reverse surface of the panel 3 while remaining connected to the panel. Because the pressing of the extending parts 17 against the above-mentioned protruding part 15 is maintained even in the midst of the opening operation, rotation of the tab 6 around the rivet 5 via the tongue piece 13 can be reliably prevented and the can lid 1 can be extremely easily opened.

[0019]

Next, a second mode of embodiment of the present invention is described with reference to Figure 3 and Figure 4. Figure 3 is an overhead plan view of a can lid of a second mode of embodiment, and Figure 4 is a cross-section taken along the line IV-IV in Figure 4.

[0020]

In the second embodiment, constituent parts which are the same as for the can lid 1 in the above-mentioned first embodiment have been ascribed the same reference numbers in the figure, and they are not explained.

[0021]

As shown in Figure 3, the can lid 20 of the second embodiment is provided with a tab 21 in the same way as the can lid 1 in the above-mentioned first mode of embodiment, but the tongue piece 22 of the said tab 21 comprises a pair of extending parts 23 extending on both its side edges. Meanwhile, the above-mentioned panel 24 is formed with a pair of protruding parts 25 projecting along both sides of the above-mentioned tongue piece 22. More specifically, the tongue piece 22 is positioned between the pair of protruding parts 25, and the extending parts 23 extend towards the protruding parts 25 and their front-end parts 26 (Figure 4) press against the side walls of the two protruding parts 25 in such a way as to ensure that the tongue piece 22 is not able to rotate. Similarly to the first embodiment above, the above-mentioned protruding parts 25 are formed bulging in a substantially elliptical shape, as seen in plan view, elongated in the direction orthogonal to the direction in which the extending parts 23 extend. Thus, the said protruding parts 25 reliably constrain the extending parts 23 since their side walls stand up with comparatively long dimensions, and the areas against which the extending parts 23 are pressed are comparatively wide.

[0022]

As shown in Figure 4, the extending parts 23 are pressed against the two protruding parts 25 as their front-end parts 26 rise upwards along the inside walls of the protruding parts 25, and thus rotation of the above-mentioned tab 21 on the above-mentioned panel 24 is reliably prevented as the protruding parts 25 are held in place by means of the extending parts 23.

[0023]

Further, the above-mentioned extending parts 23 are formed so as to be slightly larger than the space between the side edges and the protruding parts 25 and to extend towards the protruding parts 25. Also, the way in which the tab 21 is attached onto the panel 24 is the same as in the first embodiment described hereinabove, and, simply because the tongue piece 22 and the extending parts 23 are pressed onto the panel 24 when the tongue piece 22 is secured onto the panel 24 by the clenching of the rivet 5, the extending parts 23 are made to rise up along the inside walls of the two protruding parts 25 as their front-end parts 26 abut against the protruding parts 25. At this time, even if the protruding part 25 are formed so as to be slightly large due to an error when the protruding parts 25 were worked, the front-end parts 26 of the extending parts 23 pressed onto the panel 24 can be made to rise upwards along the side walls of the protruding parts 25 and correspond to the shapes of the protruding parts 25, and it is extremely easy to create a state in which the said extending parts 26 and the protruding parts 25 are in integral intimate contact.

[Brief description of the drawings]

[Figure 1] This is an overhead plan view of a can lid of a first embodiment of the present invention.

[Figure 2] This is a cross-section taken along the line II-II in Figure 1.

[Figure 3] This is an overhead plan view of a can lid of a second embodiment of the present invention.

[Figure 4] This is a cross-section taken along the line IV-IV in Figure 3.

[Explanation of the references]

1, 20 ... easy-open can lid, 3 and 24 ... panels, 4 ... score, 5 ... rivet, 6, 21 ... tab, 10 ... break-open part, 11 ... front-end part, 12 ... grasping part, 13, 22 ... tongue piece, 15 and 25 ... protruding parts, 16 ... circular hole part (cut-away part), and 17 and 23 ... extending parts.

FIG. 1

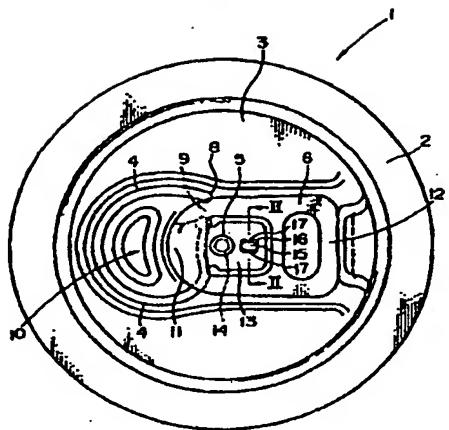


FIG. 2

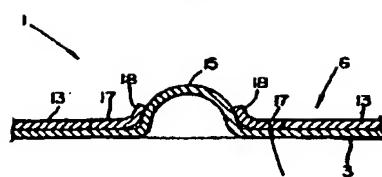


FIG. 4

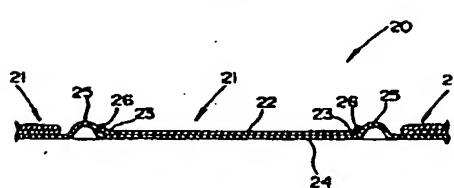


FIG. 3

